

GTP FOR UNINHIBITED Type II TRANSFORMER OIL

Sl. No.	Property	Test Method	Limits			Bidder Offer
A Function			Type I	Type II	Low Temperature switch gear oil	
i	Viscosity at 40°C	IS 1448 (Part 25)	12mm ² /s, Max	15mm ² /s, Max	3.5mm ² /s, Max	
ii	Viscosity at 0°C ¹	IS 1448(Part 25)	-	1800mm ² /s, Max	-	
iii)	Pour Point	IS 1448 (Part 10/Sec 2)	-40°C, Max To be based on LCSET refer Table 1 ¹	-10°C, Max To be based on LCSET refer Table 1 ¹	-60°C, Max	
iv)	Water content	IEC 60814	30mg/kg ³ /40mg/kg ⁴ , Max			
v)	Breakdown Voltage	IS6792	30kV/70kN ⁵ , Min			
vi)	Density at 20° C	IS 1448 (Part 16)	0.895g/ml, Max			
vii)	DDF at 90°C(Dielectric Dissipation factor)	IS 16086	0.005, Max			
viii)	Particle content	IS 13236	No general requirement ¹⁰			
B Refining/Stability						
ix)	Appearance	-	clear, free from sediment and suspended matter			
x)	Acidity	IEC 62021- 1	0.01 mg KOH/g, Max			
xi)	Interfacial tension	ASTM D971	No general requirement ⁶ (min 40mN/m)			
xii)	Total sulphur content	ISO 14596 or ASTM D4294	No general requirement			
xiii)	Corrosive sulphur	DIN 51353	Not Corrosive			
xiv)	Potentially Corrosive sulphur	IS 16310	Not Corrosive			
xv)	DBDS	IS 16947 (part 1)	Not detachable (< 5 mg/kg)			
xvi)	Inhibitors according to IS 13631/IEC 60666	IS 13631	(U) Uninhibited Oil : not detectable (<0.01%)			
			(T) Trace inhibited oil: <0.08%			
			(I) Inhibited oils: 0.08% - 0.40%			
			(see 3.6 to 3.8)			
xvii)	Metal passivator additives according to IS 13631/IEC 60666	IS 13631	Not detectable (< 5 mg/kg), or as agreed upon with the purchaser			
xviii)	other additives		see ⁷			
xix)	2 Furfural and related compounds content	IS 15668	Not detectable (<0.05 mg/kg) for each individual compound)			
C Performance						
XX	Oxidation stability	IS 12422 (Method C) Test Duration ¹¹	For oils with other antioxidant additives and metal passivator Additives (see 6.12)			
a)	Total acidity ⁹	1.9.4 of IS 12422	1.2m KOH/g Max			
b)	Sludge ⁹	1.9.1 of IS 12422	0.8% Max			
c)	DDF at 90- C ⁹	1.9.6 of IS 12422	0.500 ⁹ , Max			
xxi)	Gassing tendency	IEC 60628, Method A	No general requirement ⁸			
xxii)	ECT	See 6.14	No general requirement ⁸			
D Health, Safety and Enviornment(HSE)						
xxiii)	Flash Point	IS 1448 (Part 21)	135° C, Min	135° C, Min	100° C, Min	
xxiv)	PCA content	IP 346	3% Max			
xxv)	PCB Content	IS 16082	Not detectable (<2 mg/kg)			